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# Fire Management *notes*

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## State Firefighters Earn Their FEPP



United States Department of Agriculture  
Forest Service

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## On the Cover:



Excess 6 x 6 water purification van (upper left) that was part of a convoy of 40 vehicles (center) driven from Utah to Wyoming and Colorado in an autumn snowstorm to be converted into a 1,000 gallon (3,785 l) rural fire engine such as this one (bottom left) used by volunteer firefighters in Sublette County, WY. Photos: Dana Stone, Wyoming State Forestry, Lyman, WY, 1994. (See related article by Dana Stone and Donna Paananen beginning on page 4.)

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# THE LAST DRIVE: GOING MILES FOR FEPP



WYOMING  
STATE FORESTRY DIVISION



Dana Stone and Donna M. Paananen

Federal Excess Personal Property (FEPP) is property acquired by the USDA Forest Service from other Federal agencies (often the military) for State use in fighting wildland fires. Just about anything becomes available at some time, ranging from large equipment to small—from aircraft to self-contained breathing apparatus.

This affordable equipment is available through the efforts of State foresters. Because the equipment often is **not** ready to fight fires,

the State forester's designee "transforms" it. It remains "on loan" from the Federal Government and is subject to a regular inventory. The program is authorized by the Federal Property and Administrative Services Act of 1949, as amended (PL 94-519), and section 10 of the Cooperative Forestry Act of 1978 (PL 95-313).

FEPP currently in service includes approximately:

- 23,000 fire trucks (various sizes, types, capacities),

- 150 fixed-wing aircraft, and
- 110 helicopters.

To learn more about acquiring FEPP for State, county, and local firefighting needs, readers should phone their State forester and ask to speak to their FEPP coordinator. An information brochure about FEPP is now available from State foresters' offices or by writing to USDA Forest Service, ATTN: FEPP Brochure, F&AM Staff, P.O. Box 96090, Washington, DC 20090-6090.

Anyone unfamiliar with the Federal Excess Personal Property (FEPP) program and its importance to volunteer fire organizations has only to look at the development of Wyoming's FEPP program over the decades, including their "Last Drive" at the end of 1994.

Their program began in 1959, when Carl Johnson, then Wyoming State forester and sole member of the Forestry Division, decided to participate in the CM2 fire program, which had existed for just a few years. (The term "CM2" is derived from Title 2 of the Clark-McNary Act, the original FEPP legislative authority.)

As Wyoming's FEPP program grew, so did the Forestry Division, and a decade later, Lloyd Cashman was hired to look after mechanical improvements to excess property borrowed from the Federal

Government. By 1985, Cashman and his crew had organized the first of many 3-day maintenance and repair classes for what had proven to be the most practical piece of FEPP for Wyoming—the



At Tooele Army Depot's DRMO near Salt Lake City, UT, mechanics worked tirelessly to get excess vehicles ready for the "Last Drive" by checking fluids, batteries, and brakes. Photo: Dana Stone, Wyoming State Forestry, Lyman, WY, 1994.

*Dana Stone is the district forester for the Wyoming State Forestry Division, Lyman District, Lyman, WY, and Donna Paananen is editor, Fire Management Notes, East Lansing, MI.*

2-1/2 ton (2,268 kg), 6 x 6 military truck that could be converted into a 1,000 gallon (3,785 l) rural fire engine. Because of Cashman's instruction and subsequent updates of the classes he offered, county volunteer firefighters throughout the State regularly repair their own converted military engines.

## Equipment Becomes Available

By January 1993, the FEPP program was in excellent shape and Bryce Lundell, State forester, and Ray A. Weidenhaft, assistant State forester—Fire Management, wanted to keep it that way. When Cashman learned that some water purification trucks might be available at Tooele Army Depot's Defense Reutilization Marketing Office (DRMO) near Salt Lake City, UT, Lundell and Weidenhaft supported the Division's interest in acquiring some of this FEPP. Dana Stone, district forester, was soon sent to Utah to find out details about the trucks.

Carter Lee, utilization and marketing coordinator for the General Services Administration (GSA) in Utah, showed Stone several acres of vehicles that would be excessed or sold within the subsequent 10 months.

Once Stone recovered from his astonishment at seeing 122 potential firefighting vehicles, he immediately "screened" 12 of the trucks for possible use by his Forestry Division. (Screening is a process by which FEPP is selected and reserved.) Between January 1993 and November 1994, Wyoming Forestry drove and/or hauled a total of 50 trucks and other much-needed equipment for their State's fire suppression program.

"Our excess equipment program wouldn't work without the cooperation of the Federal Government—the Department of Defense, the GSA, and the USDA Forest Service—our neighboring State forestry agencies, and our own colleagues in Wyoming from the State Forestry Division, county fire organizations, and, of course, our many volunteer firefighters."

## More FEPP To Go on the Road

In October of 1994, the final large group of Wyoming's favorite equipment—the 2-1/2 ton (2,268 kg), 6 x 6 trucks—became available. Included among this FEPP were water purification units that had been manufactured in 1973, rehabilitated in 1989, and unused thereafter.

Cashman, Stone, and Don Towns began planning how they would transport 31 trucks plus 2 air compressors on trailers from Tooele,

UT, to Cheyenne, WY. The recently appointed State forester, Mike Gagen, quickly approved the paper work and their transport plan.

News travels quickly in the Wyoming fire community, and soon many counties were volunteering to help make the vehicles road-worthy and to transport the equipment back to their State. (Of course, the volunteers hoped to secure some of the excess property for their own county firefighting programs.)

Continued on page 6



*The convoy started out on a fall day in Utah with a temperature of 40 °F (4 °C) and a rainstorm predicted for that evening. It wasn't long before the group experienced winter driving conditions such as those shown as they stopped at a rest area in Weber Canyon. The Suburban on the left was the traffic control vehicle for the convoy from Goshen County, WY. Photo: Dana Stone, Wyoming State Forestry, Lyman, WY, 1994.*



Members of the Colorado State Forest Service told Cashman that they too had screened some of the available equipment. However, they wanted van boxes removed at Tooele Army Depot, which could not be done. Cashman described Wyoming's transport and van removal plan—vans would be removed “on the road” at Evanston, WY. Quickly, Colorado decided to provide three mechanics/drivers to help with the transport of Colorado's FEPP during Wyoming's move.

The organizers chose a date and announced that during the week of November 13, 1994, Wyoming and Colorado would move 37 purification units, 4 air compressors on trailers, and 1 fuel truck.

As all “best laid schemes” do, their plan worked, but it was much more complicated than its originators had thought possible, and it “often went awry”! (For complete details of purchasing fuel in bulk, finding motel accommodations and provisions for 40 people, locating overnight parking facilities for 40 vehicles, including six lowboys (trailers for hauling equipment), and working with mechanics and drivers from a variety of Wyoming and Colorado counties, see Stone (1995).)

After several days of prework, the group began the “Last Drive” in Utah at about 5 a.m. on Wednesday, November 16, with a gentle breeze blowing and temperatures over 40 °F (4 °C). On what looked like a fine autumn day for a convoy, the morning weather forecast predicted that a rain storm would move into the Salt Lake City area by “late afternoon, early evening.” However, at 8:15 a.m., a light



*The first step in converting a 6 x 6 water purification van into a wildland fire engine was to remove the van box, which was accomplished in an assembly line at Evanston, WY, in only 2-1/2 hours. Photo: Dana Stone, Wyoming State Forestry, Lyman, WY, 1994.*

drizzle began, and soon the convoy learned there was a snowstorm ahead in Ogden, UT. Wiper blades (at least one per truck—most of the FEPP didn't have any) were quickly installed and tops put on trucks that needed them.

The convoy drivers learned the wisdom of driving slowly—no more than 35 miles per hour (56 km/h)—and keeping windows up when professionals in 18-wheelers passed by at high speed. Every time an 18-wheeler rushed by, heavy, “slushy” snow landed on windshields (and would also land on the driver's laps when windows were rolled down). As the convoy drivers agreed, “So much for the prediction of ‘light rain.’” As snow got thicker and deeper on mountainous roads, there were a few breakdowns of vehicles, but with the mechanical expertise of Cashman and others, trucks were rolling again in record time. Drivers were glad to have reservations at a motel that night when they learned that the Interstate might be closed because of snow.

When they awoke the next morning in Evanston, WY, it was clear and cold, and 14 inches (36 cm) of snow had fallen. Again the drivers experienced a few problems during their time driving slowly in tandem—including Cashman having to explain to a highway patrolman that a communication failure was the reason that several vehicles in the convoy were parking illegally along an “off ramp.” The good news is that the last of the convoy arrived around midnight in Cheyenne, WY, on November 17. It was the end of the Last Drive from Tooele Army Depot DRMO. While there were varied breakdowns and many worried drivers at times—especially when they heard that parts of the highway were accident laden—they arrived without incident.

For readers curious about the furthest distance that anyone drove during that November snowstorm, the answer may be a surprise. One unit traveled to Newcastle, WY, from Tooele Army Depot—a distance of 610 miles (982 km). The



only reported "accident" was a "mark" on one vehicle—a small crease just below the side window—caused by someone (without a mirror on the passenger side of his vehicle) squeezing a little too closely to another vehicle in a parking lot.

## The First of Many Success Stories

Only 15 days after work began at Tooele Depot, the 14 volunteer firefighters in the small community of Hanna, WY (it's in Carbon County and has a population of 1,076), were able to use an "excess" 6 x 6, which had already been transformed into a "new" 1,000 gallon (3,785 l) wildland firefighting engine.

At least 65 individuals from Wyoming and Colorado and others from the Federal Government can take pride in their efforts to ensure this and eventually many other transformations took place efficiently. As Dana Stone asserts, "Our excess equipment program wouldn't work without the cooperation of the Federal Government—the Department of Defense, the GSA, and the USDA Forest Ser-



*The first 6 x 6 to be converted from the "Last Drive" convoy. Fifteen days after work began at Tooele Army Depot, this engine was ready for use by Hanna-Elmo volunteers in Carbon County. Photo: Dana Stone, Wyoming State Forestry, Lyman, WY, 1994.*

vice—our neighboring State forestry agencies, and our own colleagues in Wyoming from the State Forestry Division, county fire organizations, and, of course, our many volunteer firefighters."

## FEPP Savings

Wyoming estimates that by borrowing FEPP and rebuilding it, they save from 50 to 70 percent of the cost of new, commercial engines. For example, one county

built a compressed air foam system (CAFS) on one of the excess military trucks at a cost of \$58,000. A commercial engine would have cost between \$175,000 and \$200,000.

## Literature Cited

Stone, Dana. 1995. The last drive. Manuscript on file at the Lyman District Office, Lyman, WY. 34 p. plus various official forms, illustrations, and photos. ■

## WILDLAND-URBAN INTERFACE INFORMATION NOW ONLINE

The Wildland-Urban Interface Advisory Committee is reaching out to homeowners in fire-prone areas via the Internet. The address for the home page is <http://www.firewise.org/>. After accessing the Firewise home page, users can ask fire protection experts questions about their own interface concerns, publicize local Firewise events on a special calendar, and/or obtain a bibliogra-

phy of fire protection information available through the National Interagency Fire Center in Boise, ID. They can also read and print the "Firewise Landscaping Checklist" and the text from the information booklet "Protecting Your Home from Wildfire."

State foresters, State fire marshals, and various Federal agency employees can acquire "Wildfire News & Notes" from the home page and

also register to receive updates and other communications.

For more information, contact Judith Leraas Cook of Leraas Cook & Associates, who created and manages the page's content and activities and is responsible for updating the wildland-urban interface material online. Her phone number is 937-237-1085, fax 937-237-1087, and e-mail address: [LeraasCook@aol.com](mailto:LeraasCook@aol.com). ■

# WISCONSIN'S HAZARD IDENTIFICATION SYSTEM

Philip T. Stromberg



## DNR

Wisconsin's wake-up call to the wildland-urban interface occurred during the 1976 and 1977 fire seasons when unprecedented structural loss occurred. Subsequently, the Wisconsin Department of Natural Resources (DNR) developed the Fire Prone Property education program, including onsite inspections. The program delivers a basic message: Homeowners that take precautions in advance stand the best chance of saving their homes from wildland fire.

In 1980, Wisconsin fire officials were named in a \$10 million lawsuit following a major fire that destroyed 35 homes and cabins. The lawsuit was dismissed by the circuit court judge because before the fire occurred, the DNR had made inspections of fire-prone properties in the area and had told homeowners how to make their properties as safe from wildland fire as possible. The judge felt homeowners had been adequately cautioned. Sadly, the homeowners in this fire-prone area had not heeded the advice.

## Concern for Firefighter Safety

While the Wisconsin forest rangers had carried out their responsibilities to educate those who lived in the wildland-urban interface, homeowners did not follow

Better and safer decisions, more effective tactics, efficiency, and time savings are goals of a Wisconsin county's hazard identification system.

through after hearing rangers' suggestions for improvement. Increasingly, the DNR felt uneasy because the problems were not going away and, in fact, were getting worse. Officials knew that more and more homes were being built in areas of high risk from wildland fire.

A primary concern was firefighter safety. Volunteer firefighters were going into unfamiliar areas, under stress, to protect structures from wildland fires. They didn't know how accessible a driveway at a specific property was, and they didn't know whether the owner had created defensible space to protect structures from fire. Inherent dangers exist when firefighters don't have this crucial information. Figuring out driveway access and defensible space while being chased by a flame front is undesirable, unsafe, and inefficient.

To improve firefighter safety in Burnett County, the Fire Number Hazard Identification System evolved. In effect, the system makes structural triage (the pro-

cess of deciding which structures can be defended and which can't) a wildland presuppression function.

## Sizing up Access and Defensible Space

As a matter of preplanning, forest rangers visited home sites that had received fire-prone inspections in the past. They sized up horizontal and vertical fuels, driveways, and turnarounds and determined, in case of a wildfire, 1) how easily firefighters and equipment could approach the property (access) and 2) how well defended from fire the property was (defensible space).

If driveway width or turnaround space was inadequate, a ranger painted a yellow mark on the fire number post at the driveway entrance. If defensible space was lacking, the ranger painted an orange mark. When a ranger found a property where both access and defensible space were poor, both color marks were painted on the post. Where access and defensible space were not a problem, the ranger painted a white mark on the post.

In every case, the ranger gave the owner literature that explained the Fire Number Hazard Identification System and its purpose. Again owners were encouraged to improve the access and/or defensible space on their property both for their own safety and that of responding firefighters. They were advised that the marking could be changed if adequate corrections

Phil Stromberg is a forest ranger for the Wisconsin Department of Natural Resources, Burnett County, Webster, WI.



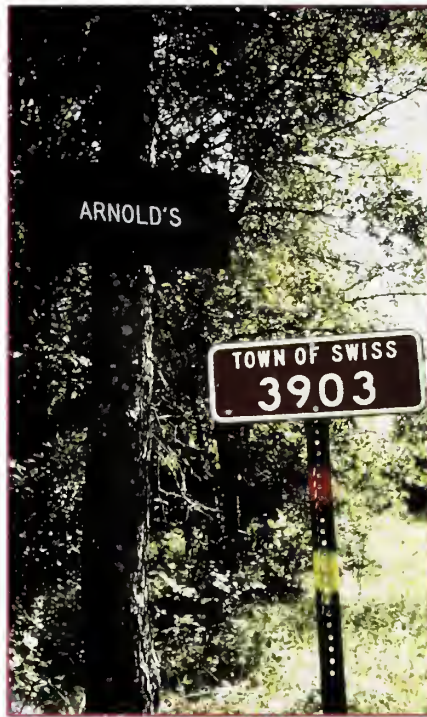
were made. In addition, they were advised that any tampering with the color designation could jeopardize firefighters' safety.

Because DNR officials knew this assessment could be misunderstood and controversial, they knew it was important to obtain authorization by the individual township boards before sending rangers throughout the county. Fire department members assisted rangers in explaining the system and its purpose to the boards. In all cases, firefighter and homeowner safety during wildland fires was stressed. A stamp of approval and support were sought from nine townships, and eight of them agreed to the use of the Fire Number Hazard Identification System in their area.

## Training Challenge

For this new system to be successful, individual firefighters had to understand what the colors mean—a communication and training challenge. During training, firefighters learn that a yellow driveway mark implies that they will need more time to get in and out of a property to avoid an entrapment situation. Firefighters learn that they will have to decide during the “heat of battle” if they have the time to approach a property with poor access to protect a structure. If they don’t, the home is either “written off,” or a smaller engine must be called for—if there is adequate time and if one is available.

For the firefighters, the orange mark, which alerts them about the owner’s defensible space, is an issue depending on the time of day or the position of the property in relationship to the fire (i.e., flank vs. head). Under some circum-



*An example of a fire number/address post at the entrance to a driveway in Swiss Township, Burnett County, WI. The yellow and orange marks indicate, respectively, inadequate driveway access and lack of defensible space. Photo: Philip Stromberg, Wisconsin DNR, Webster, WI, 1995.*

stances, an orange mark implies protection cannot be provided to the residence. Time of day and position on the fire may allow for conventional tactics in defending the home. Under a worst-case scenario, if the firefighters decide to “defend in place” (maintain their position at the structure as the fire passes), that decision will be dangerous for them. If the firefighters decide they cannot safely defend in place, their option is to apply water (preferably with synthetic foam additive) just prior to the fire’s impact. They can then make a rapid exit with a quick followup into the site after the fire’s passage. (Most of Wisconsin’s structural protection allows rapid exits and reentries.) If there are more structures than resources to defend, triage decisions will conclude that these homes will have to be written off.

It is easy to see what is different about this hazard identification system conducted as a presuppression initiative compared with structural triage decisions made during an incident. When determinations are made ahead of time, firefighters save a huge amount of time—of course, time is of the essence on an out-of-control fire. This presuppression effort allows a closer, less stressful, and objective look at each site. It is much better to make these decisions ahead of time rather than during the stress of an incident. The marks are a “heads up” signal for firefighters, and they appreciate the effort and the concern for their safety.

## Realistic Expectations

Better decisions, safer decisions, more effective tactics, efficiency, time savings—all of these describe the benefits of this hazard identification system. The onsite inspections and education program help homeowners to develop realistic expectations of fire protection, and they realize they have a choice—take precautions in advance of a wildfire or ignore the warnings and possibly lose their property. One of many spinoff benefits includes providing local officials an opportunity to involve themselves with the interface problem. Where strict and effective zoning regulations could accomplish the Wisconsin DNR’s goals but have, in the past, lacked local support, the Fire Number Hazard Identification System appears to provide some semblance of an alternative.

Readers with questions or comments about the system described here are encouraged to contact Webster Ranger Station, Box 51, Webster, WI 54893, telephone 715-866-8201, or fax 715-866-8209. ■



# TRAINING A NEW GENERATION OF EMERGENCY RESPONSE PERSONNEL



Kent Contreras

In recent years, as more and more homeowners chose to live in the northeast corner of Washington State, the Pend Oreille County fire community became increasingly concerned about wildfires in this area where wildlands interface with urban areas. County officials realized they lacked sufficient volunteers for their current and future rural firefighting forces. They knew they needed more than “bodies to hold hoses.” The county required highly skilled individuals to respond to any emergency encountered.

In 1993, three agencies and several private groups worked together to create a firefighter program to train young people still in high school in Pend Oreille County. When they approached local school districts for help in ensuring the availability of a new generation of emergency response personnel, principals and teachers understood the need and cooperated fully. Lead instructors used a screening process to identify both male and female students who were at least age 16 and had the aptitude and maturity for emergency response activities. The instructors tried to identify and select students with the drive and initiative to complete the intensive program and become an asset to the community. Soon after the identified students were contacted, a panel of instructors

When officials in Washington State’s Pend Oreille County realized their current and future need for highly skilled men and women to respond to any emergency encountered—including wildland-urban interface fires—they originated a training program centered around high school students.

and coordinators interviewed those who were interested in participating in the training program.

Each student enrolled knew he or she was sponsored by a fire district (which made the program all the more “real” to those involved), and the first Pend Oreille County Junior Fire Fighter Program (P.O.C.J.F.F.P.) was underway with 23 enrollees. Because each year since 1993 a new group of high school students has taken part in

the interagency training, as of this writing, over 70 young people from 16 to 20 years old are capable wildland firefighters.

## Emergency Response Training

The emergency response training lasts for 6 weeks after school has adjourned for the summer. Students who successfully complete the course are ready to respond to structural fires, wildland-urban in-



*Kent Contreras is the acting assistant fire management officer, USDA Forest Service, Colville National Forest, Newport Ranger District, Newport, WA.*

*R. J. Nomee, lead forestry technician on the Newport Ranger District, briefs students on L.C.E.S., the 10 Standard Firefighting Orders, and the 18 “Watch Out!” Situations. Photo: Randy Ostman, Colville National Forest, Newport, WA, 1996.*

terface fires, accidents, and medical emergencies within their fire district. In addition to the 8-hour days spent in the classroom or in the field, they are required to spend 3 to 4 hours studying materials at home. If needed, mentors are available to provide additional training to help students meet the requirements of the course.

The curriculum includes the following courses: basic wildland firefighting, medical first response (State-certified), structural firefighting, emergency flagging, hazardous materials, and helicopter safety. A job preparation class entitled "Roadmap to Success" is included in the training, and some students attend the North Bend Fire Training Academy in North Bend, WA, for "Burn to Learn" and "Search and Rescue" courses.

## Local Agency Involvement

Instructors from the local area represent the USDA Forest Service's Colville National Forest; Washington State Department of Natural Resources (DNR) (Northeast area), Spokane County Fire District 9, Pend Oreille County Fire Districts, and local businesses. At the beginning of the program, donations from local businesses were used to purchase materials and equipment—each student requires around \$3,500 to pay for textbooks and other requirements. Currently, Federal and State grants help defray these expenses.

In June of 1995, the third year of its existence, Forest Service seasonal firefighters participated in the basic wildland firefighting session with the P.O.C.J.F.F.P. In what is commonly called "Guard School" or "Fire Forces Training," the junior firefighters received



*Students in the Pend Oreille County Junior Fire Fighter Program (P.O.C.J.F.F.P.) learn hotspotting and line construction on a practice fire. Photo: Randy Ostman, Colville National Forest, Newport, WA, 1996.*

S-130 (basic firefighter training) and S-190 (basic fire behavior) completion certificates. The classes were a success, and programs were planned to include Forest Service seasonals again in the future.

## How and Why the P.O.C.J.F.F.P. Works

The P.O.C.J.F.F.P. is a success for a number of reasons, including limited enrollment. Past programs have had an average of 20 students, but enrollment may rise in the future due to interest from other counties. Objectives and expectations are given to students a month before any classes begin, allowing them the opportunity to back out if they feel they cannot complete the full 240 hours of training.

When the program starts, the students are issued full turn-out gear, wildland fire gear, and textbooks. From the very beginning, safety is stressed. During every class and

discussion, the students are reminded that safety comes first. Students learn the importance of the 18 "Watch Out!" Situations and the 10 Standard Fire Orders and understand standards for survival. Trainers and students regularly discuss L.C.E.S. (Lookouts, Communications, Escape Routes, and Safety Zones).

Because at the end of the program the students receive a certificate of completion for S-130 and S-190, the Forest Service has a potential workforce of "pick-up" or "AD" (administratively determined) firefighters as soon as the students reach age 18. Those individuals who have met previous criteria and become emergency firefighters for the Forest Service are trained in ethics and conduct and issued firefighter qualification cards (red cards). While working with their fire district, the students receive continuing education and on-the-job training.

Continued on page 12



While taking their regular high school classes required for graduation, those already trained can respond to incidents within their district. They also may be called upon to provide mutual aid to neighboring districts. The Washington State DNR will oftentimes utilize the responding district's apparatus and crew for suppression and mop-up of fires in State-protected areas. If the Incident Commander so chooses, the equipment and crew will be temporarily hired for the duration of the fire.

## From the Viewpoint of an Instructor

I have been involved with the program from its inception, and I have seen the development of an outstanding course. Students who have gone through the P.O.C.J.F.F.P are successful, respected, and have chosen a career. Many graduates are already working as firefighters or emergency medical services personnel. Graduates of the program have saved at least five lives and, because of their skills, have touched the lives of countless others.

Colville National Forest's Newport Ranger District has hired four graduates to fill positions on a seasonal fire crew. The young adults come to work fully prepared with the skills needed, and their enthusiasm is remarkable. Since the first P.O.C.J.F.F.P. participants became qualified to fight fire, I've responded to many interagency fires that involve the Pend Oreille County Fire Districts. Frequently



*P.O.C.J.F.F.P. students protect the "origin" of the practice fire for future investigation while they learn mopup techniques. Photo: Randy Ostman, Colville National Forest, Newport, WA, 1996.*

at least one individual on the fire is a graduate from the course. Many of these fires occur during the work day when some of the adult volunteer forces are not available to respond. As a result, graduates are more likely to respond and make the first attack on a fire that may be threatening homes or structures.

As a lead instructor and course coordinator for the wildland firefighter portion, I believe that we are developing a new generation of firefighters who are fully qualified to work for any agency needing trained individuals.

In addition to their background with wildland fires, the graduates bring with them a knowledge of structure protection, triage

(decisionmaking about structural protection), and medical expertise.

As the fire situation in the Spokane, WA, area becomes more complex with increasing numbers of wildland-urban interface fires, so does the need for cross-trained individuals. The Pend Oreille County Jr. Fire Fighter Program is a major step towards reaching this goal.

For more information about this training, readers should contact Kent Contreras at USDA Forest Service, Colville National Forest, Newport Ranger District, 315 N. Warren Ave., Newport, WA 99156, or telephone him at 509-447-7350. His e-mail address is /s=k.contreras/ou1=r06f21d03a@mhs-fswa.attmail.com. ■



# FIRE PROGRAM MANAGEMENT COURSE AVAILABLE



Laurie Perrett

*Editor's Note: Laurie Perrett served as chair of the interagency steering committee responsible for developing the course described in this article. Others on the committee and the agency they represent are as follows: Glenn Anderson, U.S. Department of the Interior (USDI) Bureau of Indian Affairs; Mike*

*Benscoter, USDI Fish and Wildlife Service; Paul Broyles, USDI National Park Service; Len Dems, USDI National Park Service; Lorri Heath, USDA Forest Service; Rich Murua, USDI Bureau of Land Management; John Philbin, USDI Bureau of Indian Affairs; Skippy Reeves, USDI Fish and Wildlife Service; and Jim Whitson, Florida*

*Division of Forestry. Course coordinator from the National Advanced Resource Technology Center was Roger Corner, USDA Forest Service; and Rick Gale, USDI National Park Service, was the National Wildfire Coordinating Group's liaison to the steering committee.*

**F**ire Program Management (FPM)—a new national course targeted at both current and future field-level fire managers—is now ready for distribution. In 1994, the National Wildfire Coordinating Group's Training Working Team chartered a steering committee to develop the FPM course. In 1995, the South Canyon Interagency Management Review Team (IMRT) emphasized the need for such training (IMRT 1995), citing better decisionmaking and increased accountability of fire program managers as mandatory.

Objectives of the FPM course include:

- Recognizing the necessity for personal accountability required in fire program management.
- Applying fire management principles toward sound decision-making.
- Demonstrating the duties and responsibilities necessary to ef-

The Fire Program Management course, targeted at both current and future field-level fire managers, stresses self-analysis and personal accountability in decisionmaking.

fectively direct a fire management program.

- Recognizing the expectations of agency administrators for quality staff work.
- Applying state-of-the-art tools and methods in fire management programs.
- Identifying reference resources available to improve fire management skills.
- Coordinating with other disciplines and agencies for greater fire program efficiency and effectiveness.

## Course Is National in Focus

The interagency steering committee invited a group of expert fire managers to generate lessons for the 7- to 8-day course. In the national package, they did not include tribal, State, or local policies and procedures. Instructors in specific geographic areas must tailor the content of the course to include the policies and procedures of all local cooperators. Supplementation of local written procedures, visual aids, and exercises is encouraged. The course is also flexible enough so that course coordinators may break the sequence into modules as necessary.

The FPM course, constructed to apply to a wide audience, reviews the broad duties of a fire program manager. Subject matter includes: national fire policy, legal considerations, fire planning, interagency cooperation, fuels management, and all aspects of fire operations. Prior to taking the course, partici-

*Laurie Perrett is the branch chief for Cooperative Fire Protection, USDA Forest Service, Fire and Aviation Management, Washington, DC.*

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pants are expected to familiarize themselves with their own agency's fire management policy and direction through specifically assigned "pre-work." Throughout the course, participants are expected to be involved in self-analysis and accountability, necessary for them to develop a written plan to document areas of needed personal improvement to be followed once the course is finished. Most lesson plans include recommended reference materials to help trainees improve their knowledge and skills.

## Five Test Sites for Course

The initial course was taught at the National Advanced Resource Technology Center (NARTC) in December 1995 to "train the trainer" and deliver the course package to geographic area course coordinators. Subsequently, FPM test



*Logo for the new national Fire Program Management Course that is now ready for distribution.*

courses were held in Portland, OR; Boise, ID; Denver, CO, and Ft. Mitchell, KY. The steering committee gathered critique comments from all sessions and incorporated them into the final course package.

## For More Information

Each agency has developed its own requirements for participation in the new course. Those interested in enrolling in a FPM course

should contact their geographic area interagency training representative for course availability and more information.

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# GUIDELINES FOR CONTRIBUTORS

## Editorial Policy

*Fire Management Notes (FMN)* is an international quarterly magazine for the wildland fire community. *FMN* welcomes unsolicited manuscripts from readers on any subject related to fire management. (See the subject index of the first issue of each volume for a list of topics covered in the past.)

Because space is a consideration, long manuscripts are subject to publication delay and editorial cutting; *FMN* does print short pieces of interest to readers.

## Submission Guidelines

Authors are asked to type or word-process their articles on white paper (double-spaced) on one side. Try to keep titles concise and descriptive; subheadings and bulleted material are useful and help readability. As a general rule of clear writing, use the active voice (e.g., Fire managers know . . . not, It is known . . .).

Submit articles to either the general manager or the editor. Complete details to reach them follow:

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Include with the paper copy of the article the complete name(s) and address(es) of authors as well as telephone and fax numbers and e-mail information. If the same or a similar article is being submitted elsewhere, include that information also.

Disks should be submitted with the paper copy. *FMN* prefers WordPerfect 5.1 (not windows) or an ASCII text file on 3-1/2 inch, IBM/Dos-compatible disks. Please label the disk carefully with system being used and name of file. When possible, submit illustrations on disk as well and include instructions for use on the label.

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**Authors are asked to use the English unit system of weight and measure, with equivalent values in the metric system.** Tables should be typed, with titles and column headings capitalized, as shown in recent issues; tables should be understandable without reading the text. Include tables at the end of the manuscript.

Figures, illustrations, slides (original transparency preferable), and clear photographs (preferably glossy prints) are often essential to the understanding of articles. On the back, please label carefully (Figure 1, Figure 2; photograph A, B, C, etc.); include your complete name and address if you wish your material returned, and indicate the "top." Clear, thorough captions (see recent issues) should be labeled to correspond with these designations. Include the name of the photographer and year when photo was taken.

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# CAMPAIGN REMINDS US TO BE RESPONSIBLE STEWARDS OF THE LAND



Tara Megan Chambers

The USDA Forest Service and country and western stars have recently joined together to remind citizens and visitors to promote healthy landscapes and prevent accidental wildfires in our wildlands. This new venture is called Keep It Country, Keep It Green (KIC-KIG), and it has its own recorded song with the same name.

KIC-KIG's creator, Dan Whittaker, who recently retired as fire prevention officer for the Tahoe National Forest, set out simply "to make a difference." He says that the collaboration aims to heighten the interaction between people, nature, and landscape by reaching people through "the pulse of America—country and western music." Two others from the Forest Service who have worked closely with Whittaker on the campaign (all have donated a good deal of their own personal time) are Rodney C. Kindlund and Nancy L. Porter. Kindlund, a Creative Services staff member on the Sierra National Forest, has contributed many of the graphics and photos for the campaign, and Porter, fire prevention specialist for the Pacific Southwest Region, has given administrative direction and support to the effort.

Keep It Country, Keep It Green—let America's children see what we have seen.

## KIC-KIG Launched

KIC-KIG was launched in 1994 at a Merle Haggard concert at the Nevada County Fair in Grass Valley, CA, where Haggard helped Smokey Bear celebrate his 50th anniversary of preventing carelessly caused wildfires. According to Whittaker, "As the pioneer of western music,

Merle Haggard, who has been with the project since its inception, and country music are excellent means through which to promote KIC-KIG's messages." Since Haggard's original performance, the campaign has been able to gain visibility through public service announcements (PSAs), posters, televised advertisements, and videos. Also supporting the cause are Michael Martin Murphey and the Oak Ridge Boys. Whittaker reports that a number of other country and western stars are eager to help promote the campaign in the future.

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Country music star Merle Haggard and Dan Whittaker, now a volunteer for the Forest Service, believe Americans should "Keep It Country, Keep It Green." Photo: Rod Kindlund, USDA Forest Service, Sierra National Forest, Clovis, CA, 1994.

*Tara Chambers, a Michigan State University graduate, was a volunteer intern for the USDA Forest Service, North Central Forest Experiment Station, East Lansing, MI, and was assistant editor for Fire Management Notes from May through August 1996.*



## Western Singer Experiences Wildland Fire

Michael Martin Murphey and his family were personally traumatized by the Hondo Fire in New Mexico in May 1996 (like many others, they were evacuated from their property in the area; however, their own ranch did not burn). Subsequently, Murphey became KIC-KIG's most prominent spokesperson. As an award-winning musician and television star, a co-chair of the National Indian Education Association, and the American Quarter Horse Association spokesperson, Murphey gives KIC-KIG tremendous visibility. Generously, Murphey performed two concerts with all proceeds going to the victims of the Hondo Fire.

More recently, Murphey produced a video at the scene of the Hondo



*The Oak Ridge Boys have recently become KIC-KIG supporters by posing for posters with fire prevention messages and the KIC-KIG slogan. Photo: Rod Kindlund, USDA Forest Service, Sierra National Forest, Clovis, CA, 1996.*

Fire that aired on KOAT Television (a CNN affiliate) in Albuquerque, NM. Whittaker and Porter helped

in this effort, with additional assistance from the Carson National Forest. Murphey talks about wildland fire problems facing our national forests and other public lands. For instance, he says, "Some fires are planned and managed, but wildfires often begin because of carelessness. Cowboy logic says we don't always need a campfire." In August, Murphey drew sell-out crowds at a 3-day Westfest at Mammoth Mountain, CA. He invited Smokey and the Forest Service to participate in every major Westfest event, not only by having a KIC-KIG fire prevention booth but also on center stage with Murphey and other western music stars. In addition, Murphey and Smokey teamed up for interviews on a local TV channel. During Labor Day weekend in September, Smokey also appeared at the Westfest at Copper Mountain, CO, with Haggard, Murphey, and Kathy Mattea.



*Michael Martin Murphey, a primary spokesperson for KIC-KIG, with his guitar in front of Mount Rose in Nevada. Photo: Rod Kindlund, USDA Forest Service, Sierra National Forest, Clovis, CA, 1995.*



## KIC-KIG Partners

The Forest Service, Murphey, and Giant Petrol of Scottsdale, AZ, have now signed an agreement and have become partners supporting the campaign.

The collaboration between the Forest Service, country and western stars, and a variety of other partners will eventually raise KIC-KIG's visibility and accessibility. Whittaker hopes that the campaign

will help educate Americans about the dangers of carelessly caused fires and the importance of preserving our natural resources for future generations. He encourages others to support the campaign by disseminating KIC-KIG posters, songsheets, and audio cassettes of the theme song. These items are described in the *1997-1999 Fire Prevention Catalog*, available from Forest Service Cooperative Forest Fire Prevention Program coordinators and State foresters.

For more information about Keep It Country, Keep It Green, its national public service campaign, the media kit, or using America's wilderness safely, readers should contact Nancy Porter, the Pacific Southwest Region's coordinator for the campaign at USDA Forest Service—Region 5, Aviation & Fire Management, 3735 Neely Way, Mather, CA 95655, or telephone 916-364-2855. ■

## ALL INVITED TO HELP CARE FOR OUR NATION'S FORESTS

Donna M. Paananen

Do you, like countless others, agree with the following?

- Our forests and related resources should be managed for the benefit of future generations.
- We need a balanced approach to natural resource management and conservation.
- People can work together for the common good of our forests and related resources.

If so, you share the beliefs of the National Forest Foundation (NFF), which recently kicked off its membership campaign and encourages you to become a member. The Foundation's vision is a world where people live in harmony with their environment, value their natural resources, and support the professionals who care for these resources.

The NFF was created by Congress in 1990 as the official nonprofit partner of the USDA Forest Ser-

vice. The Foundation works to bring people together to care for our Nation's forests. Foundations such as this one are not new—for a quarter of a century, there has been a National Park Foundation, and the National Fish and Wildlife Foundation has existed for a decade. As NFF President J. Lamar Beasley said, "The growing population and increasing use of the 191 million acres (77 million ha) of national forests and related resources make it the opportune time for the NFF and Forest Service to strengthen their partnership and the management of the forests by involving individuals who care about conservation and the environment."

Forest Service Chief Jack Ward Thomas joined the NFF in July 1996 when the membership campaign began. Chief Thomas explained why he is proud to be a member, "The Foundation helps forge public-private partnerships and educational programs for Forest Service projects and activities."

By the end of 1996, the NFF hopes to have more than 20,000 mem-

bers. These individuals have the opportunity to participate in the management and conservation of our forest lands for future generations. As the NFF membership base grows, it is expected that the Foundation will attract a constantly growing number of corporate sponsors and private donors. With more funds, the Forest Service and forest research programs will be better supported.

In addition to the satisfaction of supporting a worthy cause with a membership contribution of \$20, members receive some tangible benefits such as a "Guide to the National Forests," a quarterly newsletter, and a membership card and bumper sticker identifying them as a member in good standing. A total of \$17 of the membership contribution is tax deductible.

Readers wishing more information should telephone NFF at 202-501-2473 or fax them at 202-219-6585. Their mailing address is National Forest Foundation, Membership Services, P.O. Box 1256, Norfolk, VA 23501. ■

*Donna Paananen is editor of Fire Management Notes, East Lansing, MI.*

# COMPUTER TOOLS CAN HELP LOOKOUT OBSERVERS



Julian M. Pike

Serving as an observer in a Fire Lookout continues a long line of tradition dating back to the early part of the century. While experience has honed and refined the activities of observers over the decades, there are also new techniques we might add from the potpourri of technical advances that have occurred in recent years. A program on a hand-held computer used at the firefinder is one of these advances that is currently part of a continuing demonstration project in Oregon. The possibilities for future development are great.

The computer program "Lookout Tools" consists of three groups of routines that I call "Fire," "Maps and Landmarks," and "Ancillary." I developed the program using a Hewlett-Packard 100LX "palmtop" computer that weighs 8 ounces (228 g) and will run for about 50 hours on two AA batteries. It has the architecture of an IBM PC-XT and is fully compatible with and exchanges files with desktop PC's. The programming language is Turbo Pascal 5.0.\*

## The "Fire" Group

In the "Fire" group, the first routine is "Smoke Report," which accepts the firefinder data of azimuth

A recently developed program for a hand-held computer can greatly assist in prompt and accurate reporting of wildland fires in the future.

and distance and computes the latitude and longitude of the smoke.

The second routine is "Cross Azimuth." "Lookout Tools" has a data base wherein the latitude, longitude, and altitude of surrounding

lookouts are immediately available. "Cross Azimuth" accepts the azimuth of the observer and the azimuth of a distant lookout and uses these two azimuths to compute the distance from each lookout as well as the latitude and longitude of the smoke. "Fire Acreage" computes the acreage of a fire from its distance and the azimuths to each side of the smoke, using the traditional firefinder method.

If a fire does get started and the observer is called on to provide weather reports, the routine "Psychrometer" will easily reduce wet and dry temperatures to relative humidity and dew point.



\*The use of corporation and trade names is for the convenience of the reader and should not be misconstrued as an official endorsement by the U.S. Department of Agriculture or the Forest Service.

Julian Pike, Ph.D., is an observer at the Table Rock Lookout for the USDA Forest Service, Wallowa-Whitman National Forest, Unity Ranger District, Unity, OR.

Julian and Lola Pike on the steps of the Table Rock Lookout cabin on the Wallowa-Whitman National Forest from which they follow the observer's mandate: to "... make intensive observations of the forest every 15 minutes." Photo: Julian Pike, Wallowa-Whitman National Forest, Unity Ranger District, Unity, OR, 1993.



## The “Maps and Landmarks” Group

The “Maps and Landmarks” group specifically targets “knowing the country”—both intuitively and quantitatively. Comparison of firefinder measurements with computed values enables accurate identification of the landmark. These data for computation generally come from maps. The six sub-routines of the “Maps and Landmarks” group are as follows:

- “Great Circle” computes the azimuth and distance between two points of known latitude and longitude.
- The “Map” routine obtains latitude and longitude for a point on any map having latitude and longitude coordinate scales.
- “XY Coordinates,” the converse of “Map,” computes the location on a map of any point of known latitude and longitude.
- “Protractor” yields values for the coordinates of a sight line across a map sheet that is not connected to the sheet of origin.
- “Elevation and Depression” finds these angles for landmarks of known distance and elevation.
- “Line of Sight” answers the question “Can I see the top of Mount A over the top of Mount B from where I am located on Mount C?”

## The Ancillary Group

The Ancillary group of routines is useful, perhaps fun, but less associated with fire management. Using readily available algorithms (Meeus 1991), the computer provides the time of local solar “Noon,” when the sun is due south of the station, the times of “Sunrise” and “Sunset,” the “Azimuth and Elevation” angle of the sun, the “Phases of the Moon,” and other time and calendar information. “Ultra Violet” tells

**Figure 1**—Reproduction of a printout of the input/output screen for the “Cross Azimuth” routine.

### CROSS AZIMUTH: Location by Triangulation

—> <Enter> to accept displayed value, or key in new value and <Enter>

Azimuth from Table Rock ddd.mm ( 347.18000 )

Azimuth from Mount Ireland ddd.mm ( 322.40000 )

Distance from Table Rock = 50.0 mi

Distance from Mount Ireland = 17.8 mi

Latitude = 45°02'.42 Longitude = 118°32'.28

<Enter> or <M>enu

Azimuth from Table Rock ddd.mm ( 347.18000 ) 14.52

Azimuth from Mount Ireland ddd.mm ( 322.40000 ) 150.37

Distance from Table Rock = 24.1 mi

Distance from Mount Ireland = 13.0 mi

Latitude = 44°40'.28 Longitude = 118°11'.42

<Enter> or <M>enu

observers how to avoid overexposure to the sun by looking at the length of their own shadow, and “Radio Horizon” helps observers to determine VHF radio coverage.

## Using the Program

The program is easy to use since all operations start from menus. Each routine has a built-in case from real life, and entering any needed new data starts a new case. For example, in figure 1, a reproduction of a printout of the “Cross Azimuth” input/output screen, I first accepted the built-in case of 347 degrees, 18 minutes, and 322 degrees, 40 minutes, with results showing the fire is 50 miles from Table Rock and 17.8 miles from Mount Ireland. The latitude and longitude of the smoke are 45°02'.42 and 118°32'.28, respectively. When I keyed in a new case of 14 degrees, 52 minutes, and 150 degrees, 37 minutes, the results show the fire is 24.1 miles from Table Rock. (Note that for easy reference, the results are indented from the “input.”)

Some computations will require no significant skill or knowledge

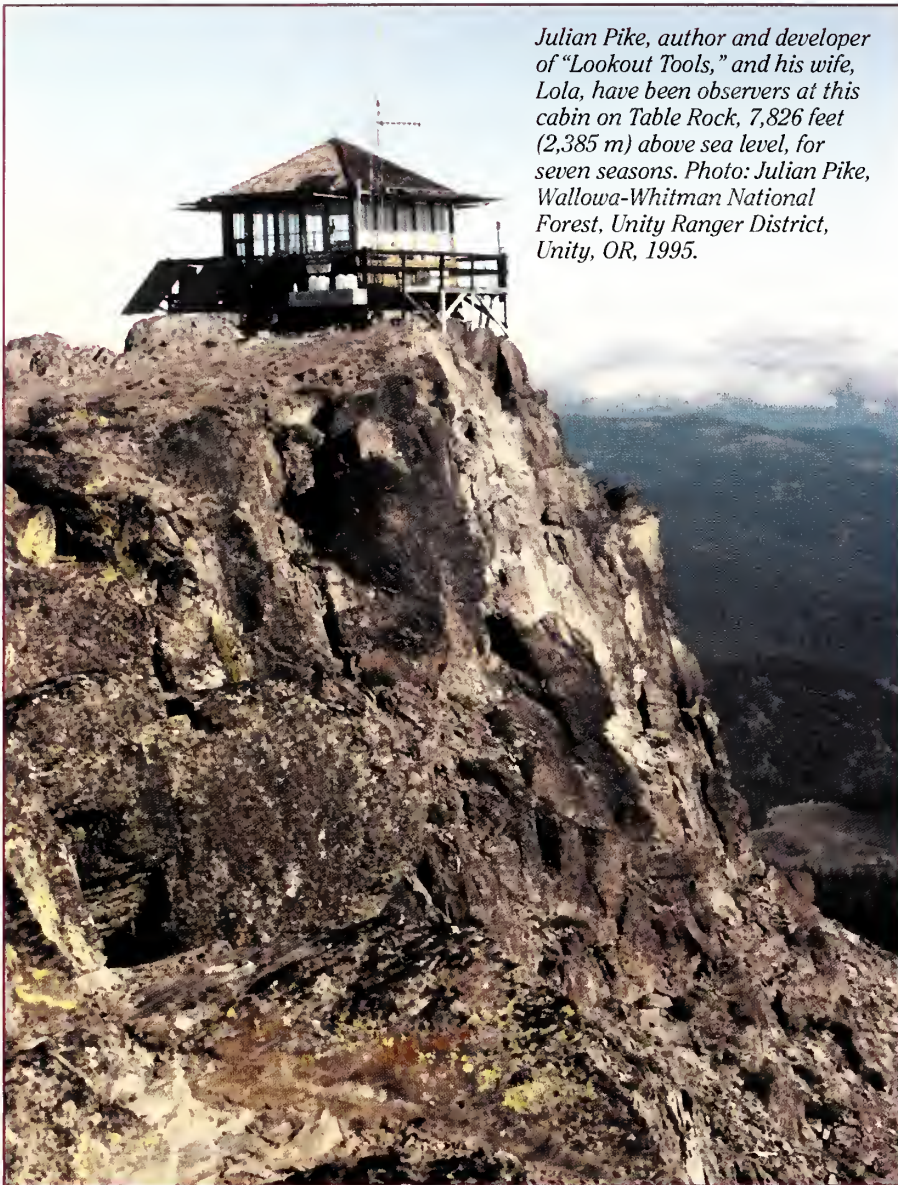
on the part of the user; some will be meaningful only in the context of lookout operations (with which most observers would be familiar). Finally, some computations involve concepts and operations that might be quite unfamiliar to many observers, but if useful, they can readily learn them.

## Accuracy

The computer uses extended numbers—a feature that absolves it from errors in arithmetic. More serious are the possible errors in the models used for the computations. The accuracy of the input data and the accuracy needed to accomplish the assignment are both considerations in choosing the model.

Results from “Lookout Tools” compared well against a surveyor’s theodolite (an instrument for measuring horizontal and vertical angles to a distant object). The ancillary routines did well against “MICA,” the Multi-Year Interactive Computer Almanac for personal computers produced by the U.S. Naval Observatory. (It covers the

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*Julian Pike, author and developer of "Lookout Tools," and his wife, Lola, have been observers at this cabin on Table Rock, 7,826 feet (2,385 m) above sea level, for seven seasons. Photo: Julian Pike, Wallowa-Whitman National Forest, Unity Ranger District, Unity, OR, 1995.*

period from 1 January 1990 to 31 December 1999.)

## Moving to a Mathematical Coordinate System

Readers acquainted with the fire reporting system in the Western United States can quickly sense that "Smoke Report" and "Cross Azimuth" move away from reporting fire location in "legal description," which comes from land surveyed into townships of 36 1-square-mile (2.6-km<sup>2</sup>) sections. By identifying the township, section, and fraction of section, property is

defined for legal purposes, and fires are located by their legal description. Since square townships cannot be continuously fit to the earth's curved surface, surveyors insert townships of less than 36 square miles to keep survey lines as well aligned as possible. These discontinuities make legal descriptions impossible to define by a mathematical coordinate system such as latitude and longitude. I suggest—at least in the near future—that we do not expect a hand-held computer to make conversions to and from a legal description or from and to latitude and longitude coordinates.

Aircraft now routinely measure latitude and longitude from Loran or Global Positioning System (GPS) instruments. Fire vehicles can be equipped with GPS as the cost of automotive systems decreases. In addition, hand-held recreational GPS units are now on the market for less than \$200 and can give locations for personnel on foot. These developments make it very attractive to move to the latitude and longitude coordinate system for all fire locating. In concert with that, firefinder maps should move to charts with topographic contours and latitude and longitude scales.

## Summary

"Lookout Tools" and a hand-held computer can greatly assist lookout observers in prompt and accurate reporting of wildland fires in the future, and they can help observers to determine names and locations of landmarks. Each routine has a built-in case from real life, and anyone can run these cases even without acquaintance with the problem or entering any data. Simply entering new data starts a new case (see fig. 1). "Cross Azimuth" also computes the longitude and latitude of the fire.

In addition, the 100LX computer has built-in software providing observers with additional functions to manage information such as a phone book, spreadsheet, data base, calculator, note taker, stopwatch, and appointment calendar. It has the potential to hold a considerable bank of information for reference by all personnel having the machine.

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